DOOSAN Document Transmittal

Upper Trishuli-1 HEP (216MW)

Date	DT No.:	SHEET
2022-07-15	UT1-HEP-DHI-PC-D-0044	1 OF 1

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SUBJECT	Submission of Review Note RN-0167, RN-0170 and RN-00177		

S. N.	REVIEW NOTE NO.	REVIEW STATUS	DWG. / DOC. NO.	REV.	DWG. TITLE / DOC. DESCRIPTION	REMARK
1	RN-0167	AN	UT1-C-090-CVL-DG-64001	0C	Layout of Main Access Tunnel to Powerhouse	
2	RN 0170	AN	UT1 C 300 CVL DC 60001	0C	Stability Calculations for the Surrounding Rock of Powerhouse Cavern	
3	RN-0177	AN	UT1-C-010-CVL-DG-42001	0E	Arrangement Drawing of Diversion Tunnel	
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Received by :

Date :

Legend of Review Status
A : APPROVED
AN : APPROVED AS NOTED
RR : RETURN FOR RESUBMISSION
FI : FOR INFORMATION

DHI STAMP

Issued by DHI

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Doosan Enerbility Co., Ltd.

Discipline : Civil

UPPER TRISHULI-1 HEP (216MW)

Client	**Nepal Water and Energy Development Company Private Limited**
Owner's Engineer	**Tractebel Engineering GmbH / Jade Consult**

REVIEW NOTE

Contractor	**Doosan Enerbility**		
Title of the Document	Layout of Main Access Tunnel to Powerhouse, sheets 1 to 3		
Document No.	UT1-C-090-CVL-DG-64001	Revision	0C
Date of Documents	27.05.2022	Received Date	30.05.2022
Transmittal Form No.	UT1-HEP-DHI-D-0247		
Previous Review Date/Status	06.03.2022/FI	Prev. Review Note No.	RN-0076
Review Note No.	**RN-0167**	**Present Review Date**	**13.07.2022**
		Present Review Status	**AN**

A: Approved AN: Approved as Noted RR: Returned for Resubmission FI: For Information, only

General Comments

1. The contractor shall confirm the shown dimensions of the Main Access Tunnel to the Powerhouse and Transformer Cavern with the supplier of the E&M equipment including its transport (including steel liner elements of Penstock) as well as for example (but not limited to)

   - dewatering and drainage system
   - HVAC-System
   - emergency evacuation plan and emergency escape routes (no cables inside pressurized emergency escape corridor)

   .
2. A separated walkway shall be foreseen.
3. The detailed design of the final entrance portal structure of the Main Access Tunnel (MAT) has not been submitted yet. In principle the surface of the bottom slab at the entrance of the Main Access Tunnel should have a certain higher elevation as the final surface elevation of the outside area in front of the portal structure to avoid entering surface water from rain events.
4. The respective detailed design report has not been submitted yet.

Topographic related comments:

1. Based on drawing doc. ref.: *UT1-C-090-CVL-DG-64002-05 Rev.0C "Excavation and Support drawing of Access Tunnel to Powerhouse",* sheet number 5 of 9, the gradient from T2 ~T6-0 is 6.38% and again T6-0 to T6 is 10.18%. However, the drawing doc. ref.: *UT1-C-090-CVL-DG-64001 Rev.0C "Layout drawing for Main Access Tunnel to Powerhouse",* sheet number 3 of 3, the gradient in branch details is indicated as 9.21% from T2 to T6. This discrepancy shall be clarified.
2. The fixed elevation indicated in drawing doc. ref.: *UT1-C-090-CVL-DG-64001 Rev.0C "Layout of Main Access Tunnel to Powerhouse",* sheet 1 of 3, at T1 at starting chainage is 940.00 masl. and at ending chainage T5 915. 400 masl. Calculated gradient of invert is S=6.379% and new invert elevation for different chainages are:
   T2,0+275.873=923.678
   T3,0+327.783=920.367
   T4,0+358.963+918.378

3. The indicated longitudinal profile of Main Access Tunnel to Transformer Cavern in drawing doc. ref.: *UT1-090-CVL-DG-64001 Rev.0C,* sheet 2 of 3, is in contradiction with drawing doc. ref.: *UT1-C-090-CVL-DG-64002-02 Rev.0C "Excavation and support of access tunnel to powerhouse",* sheet 2 0f 9, the gradient should be indicated with three digits after decimal for accuracy.

DISCLAIMER

Any approval will not release the Contractor from any of his obligations under the Contract. Despite the Engineer's approval the Contractor remains fully responsible for design, calculation, dimensioning, supply and installation without limitations.

Sebastian Beck, Chief Design Engineer